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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/528,766	03/17/2000	Martin L. Radue	OMCO:0056	5306

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EXAMINER

SOLAK, TIMOTHY P

ART UNIT PAPER NUMBER

3746

DATE MAILED: 10/17/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/528,766

Applicant(s)

RADUE, MARTIN L.

Examiner

Timothy P. Solak

Art Unit

3746

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 August 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 March 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Reopening of Prosecution

In view of the appeal brief filed on 08/20/2002, PROSECUTION IS HEREBY REOPENED. New grounds of rejection are set forth below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

- (1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,
- (2) request reinstatement of the appeal.

If reinstatement of the appeal is requested, such request must be accompanied by a supplemental appeal brief, but no new amendments, affidavits (37 CFR 1.130, 1.131 or 1.132) or other evidence are permitted. See 37 CFR 1.193(b)(2).

Double Patenting

Claims 1-7 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over Claims 1-7 of U.S. Patent No. 6,398,511.

Claims 8-14 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over Claims 17-23 of U.S. Patent No. 6,398,511.

Claim 15 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over Claim 6 of U.S. Patent No. 6,398,511.

Claims 15-24 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over Claims 33-42 of U.S. Patent No. 6,398,511.

Although the conflicting claims are not identical, they are not patentably distinct because the claims of U.S. Patent 6,398,511 contain all the elements of Claims 1-24, of the instant invention. Such broader elements in the application are said to “dominate” the more narrow claims in the parent which contain additional elements. Thus, when the patent expires, one making the invention set forth in the then expired claims would be infringing the claims of the instant application. This would constitute an unlawful extension of monopoly as set forth in the law. In *Re Braithwaite*, 154 USPQ 38 at 40) (CCPA 1967). Alternatively, the omission of (any) elements of the Claims 1-24 is considered within that of ordinary skill in the art.

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, “a check valve biased in the open position” (Claim 20) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 20 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 20 recites the limitation “a check valve biased into an open position”; absent a Figure, it is not clear as to what this limitation refers. The “check valve” recited in Claim 20 is encompassed by the means function, i.e. “means for admitting a supply of fluid”. The function is defined by the specification starting on page 8, line 26: *“Pump chamber 148 receives fluid from an inlet 150. Inlet 150 thus includes a fluid passage 152 through which fluid, such as pressurized fuel, is introduced into the pump chamber. A check valve assembly, indicated generally as reference numeral 154, is provided between passage 152 and pump chamber 148, and is closed by the pressure created within pump chamber 148 during a pumping stroke of the device.”* The means function, therefore is limited to the “passage 152” and “check valve 154”. There is no disclosure of “check valve 154” being biased in the open direction. Claim 20 lacks antecedent basis for this limitation.

Accordingly, this claim has not been treated in the art rejections. However, this is not to be presumed as an indication of allowable subject matter.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1 and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by Waring (4,940,035). Waring teaches a reciprocating fuel pump (column 3, lines 45-47) comprising: a housing assembly 21/8 including a drive section 21 and a pump section 8 (see Figure 2); a drive assembly 19/20/21 disposed in the drive section (see Figure 3), the drive assembly including a permanent magnet 21 (column 4, lines 2-3) and a coil assembly 20 having windings (column 4, lines 5-6) and disposed within the central volume of the drive section adjacent to permanent magnet and movable reciprocally axially along a central axis upon application of alternating polarity signals to the windings (column 4, lines 40-45). Waring further teaches a pumping member 17 secured to and movable reciprocally with the coil assembly, the pump member extending into the pump section to produce pressure variations in the pump section during reciprocal movement to draw fuel into the pump section and to express fuel there from (column 4, lines 40-45).

Claims 2-4, 6-7, 9-11 and 13-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Waring (mentioned previously). Waring teaches a reciprocating fuel pump (column 3, lines 45-47) comprising: a housing assembly 21/8 including a drive section 21 and a pump section 8 (see Figure 2); a drive assembly 19/20/21 disposed in the drive section (see Figure 3), the drive assembly including a permanent magnet 21 (column 4, lines 2-3) and a coil assembly 20 having windings (column 4, lines 5-6) and disposed within the central volume of the drive section adjacent to the permanent magnet and movable reciprocally axially along a central axis upon application of alternating polarity signals to the windings (column 4, lines 40-45). Waring further teaches a pumping member 19/17 secured to and movable reciprocally with the coil

assembly, the pump member extending into the pump section to produce pressure variations in the pump section during reciprocal movement to draw fuel into the pump section and to express fuel there from (column 4, lines 40-45).

Waring further teaches the permanent magnet at least partially surrounds a portion of the central volume (inside portion of 21) and extends generally along a central axis (axis of 17, see Figure 3) and wherein the coil assembly is disposed radially within the portion of the central volume.

Waring further teaches the permanent magnet is disposed adjacent to an end of the drive section and wherein the coil assembly is disposed between the permanent magnet and the pump section (see Figure 3). Waring discloses the permanent magnet includes at least one magnet element (top portion of 21 protruding into the central volume). Waring discloses an inlet 37 and an outlet 30 check valve, both valves being actuated by pressure variations produced by reciprocal movement of the pump member in the pump section (column 6, lines 34-35 and 51-56). Waring discloses a nozzle 14 in fluid communication with the pump section for expressing pressurized fuel from the pump section (column 6, lines 25-26).

Claim 15, 19, 21-24 are rejected under 35 U.S.C. 102(b) as being anticipated by Gladden (3,781,140). Gladden teaches a reciprocating pump comprising: a drive system 13/49/45/41-43 including a permanent magnet 49 and a coil assembly 45, the coil assembly being energizable to cause reciprocal movement (column 2, lines 15-20) of a drive member 41/42/43. Gladden further discloses a pump assembly 17/20 disposed adjacent to the drive system (see Figure 1), the pump assembly including means for admitting 14/20 a supply of fluid into an inner volume 31 of

the pump assembly, means for pressurizing 21 the inner volume by reciprocal movement of the drive member, and means for expressing 80 pressurized fluid from the inner volume. Gladden further teaches a tubular member 13 extending from the coil assembly through a sealed bore 17 into the pump assembly including a valve element 20 which seats 29 to seal an inner passageway 14 of the drive member during a pressure stroke thereof. Gladden further discloses an outlet check valve 78 biased 79 into the closed position and opened by an increased in pressure within the inner volume during operation. Gladden discloses a nozzle 80 in fluid communication with the pump assembly for expressing pressurized fluid from the pump assembly.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Waring (mentioned previously). Although Waring teaches most of the limitations of the claims, including a tubular pump member 17/19 (column 4, lines 1-5) extending from the coil assembly 20 through a bore 16 into a pump section 8, he does not explicitly disclose a seal. It was old and well known in the art of pump fabrication that an ordinary seal between a pump's piston and a pump's cylinder advantageously increased the efficiency of the unit by preventing blow by leakage. Therefore, it would have been obvious to one of ordinary skill in the art, at the time the

invention was made, to have used an ordinary seal, in the pump disclosed by Waring, to have advantageously increased the efficiency of the unit.

Claims 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gladden, in view of Waring (both mentioned previously). Although Gladden teaches most of the limitations of the claims, including a pump assembly 17/20 with a drive system 13/49/45/14-43 including a permanent magnet 49 and a coil 45, he does not disclose the magnet to be located surrounding a central volume containing the coil disposed between the permanent magnet and the pump assembly. Waring, disclosing a pump assembly 17/19 with a drive system 19/20/21 including a permanent magnet 21 and a coil 20, specifically teaches the permanent magnet located surrounding a central volume containing the coil, said coil disposed between the permanent magnet and the pump assembly. Waring discloses the permanent magnet is composed of at least two magnet elements (the element of 21 protruding from the top and the elements of 21 protruding from the sidewalls, see Figure 3). Gladden cites difficulties in mass manufacturing of the prior art type motors (column 1, lines 62-64). Waring teaches the permanent magnet advantageously eased manufacturing (column 4, lines 22-25 and column 2, lines 28-30). Replacing the permanent magnet disclosed by Gladden with the permanent magnet disclosed by Waring would not have changed the operation of the pump and would have required only minimum level of skill. Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to have used the permanent magnet taught by Waring, in the pump disclosed by Gladden, to have advantageously eased manufacturing.

Response to Arguments

Applicant's arguments, received on 08/20/2002, with respect to Claims 1-24 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Whitted (1,908,092) teaches an electric fuel pump.
- Takahashi et al. (5,104,298) teach a pump and motor combination with a permanent magnet and electric coil.
- Hideo (3,606,595) teaches an Electromagnetic Pump Utilizing a Permanent Magnet.
- Young (5,351,893) teaches an electromagnetic fuel injector comprising a linear motor and pump.
- Cox et al. (3,386,622) teach an electromagnetic pump with a permanent magnet and coil.
- Lenning (2,934,256) teaches an electromagnetic pump with a moving coil.
- McMahon (3,642,385) teaches a fluid pump with a fixed permanent magnet and a moving coil.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy P. Solak whose telephone number is 703-308-6197. The examiner can normally be reached on Monday through Thursday from 8am to 6pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy S. Thorpe can be reached on 703-308-0102. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9302 for regular communications and 703-872-9303 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0861.


tps

October 8, 2002


Timothy S. Thorpe
Supervisory Patent Examiner
Group 3700